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SUBJECT: Requests enforcement discretion to TS Section 3.8.1, "AC Sources - Operating." Enforcement discretion would allow,on one time basis,extension of completion time in Required Action B.4 of TS 3.8.2 from 72 h to 108 h.

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APS

Palo Verde Nuclear Generating Station

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102-04342 – GRO/SAB/REB
September 3, 1999

U. S. Nuclear Regulatory Commission
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Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 2
Docket No. STN 50-529
Proposed Enforcement Discretion to Technical Specification
Section 3.8.1, "AC Sources - Operating"

Arizona Public Service Company (APS) requests enforcement discretion to Technical Specification Section 3.8.1, "AC Sources - Operating". The Unit 2 emergency diesel generator (EDG) 2A has developed a leak in the jacket water sub-system that is large enough to affect the operation of the EDG. The EDG had previously been removed from service on September 1, 1999 at 0447 MST to repair a problem with the 3R cylinder and was being run to perform testing when the leak developed. The jacket water leak must be repaired to return the EDG to operable status. A review of the required work scope has determined that it could take an additional 1.5 days to repair the EDG and return it to an operable status. This would exceed the 72 hour completion time in required action B.4 of Technical Specification 3.8.1. Therefore, the Palo Verde Technical Specifications would require a plant shutdown prior to completing the repairs on EDG 2A.

The enforcement discretion would allow, on a one time basis, extension of the Completion Time in Required Action B.4 of Technical Specification 3.8.1 from 72 hours to 108 hours. The revised completion time will allow repairs to be completed on Unit 2 emergency diesel generator A. Compensatory measures, described in enclosure 1, will be taken during the extended outage for Unit 2 emergency diesel generator A.

Provided in the enclosure to this letter is the information required by Administrative letter 95-05 revision 2 dated July 27, 1999. The Plant Review Board has reviewed and concurred with this proposed request.

A001

No commitments are being made to the NRC by this letter.

Should you have any questions, please contact Dan Marks at (623) 393-6492.

Sincerely,

Gregg R. Overbeck

GRO/SAB/REB/

Enclosure

cc: E. W. Merschoff (all w/Enclosure)
P. H. Harrell
N. Kalyanam
J. H. Moorman

ENCLOSURE

PROPOSED NOTICE OF ENFORCEMENT DISCRETION TO TECHNICAL SPECIFICATION

3.8.1, "AC Sources - Operating"

DIESEL GENERATOR NOED

1. **The TS or other license conditions that will be violated.**

Technical Specification 3.8.1- AC Sources – Operating
The following AC electrical sources shall be OPERABLE:

...

B. Two diesel generators (DGs) each capable of supplying one train of the onsite Class1E AC Electrical Power Distribution System ...

ACTION B. One DG inoperable.

...

Restore DG to OPERABLE status. (Completion time 72 hours)

H. Required Action and Associated Completion Time of Condition A, B, C, D, E, F, or G not met.

H.1 Be in MODE 3. (Completion time 6 hours)

AND

H.2 Be in MODE 5. (Completion time 36 hours)

2. **The circumstances surrounding the situation, including apparent root causes, the need for prompt action and identification of any relevant historical events.**

Palo Verde Unit 2 is currently operating at 100 percent power. The Unit 2 emergency diesel generator (EDG) 2A has developed a leak in its jacket water sub-system at the 2L cylinder. This leak developed during testing of the EDG being conducted following repairs to the 3R cylinder that started on September 1, 1999 at 0447 MST. The leak is large enough to prevent returning EDG 2A to operable. Based on this, APS has determined that EDG 2A remains inoperable per Technical Specification 3.8.1 Condition B. The jacket water leak must be repaired to return the EDG to operable status. A review of the required work scope has determined that it could take up to 1.5 days to repair the jacket water sub-system and complete the post maintenance testing. This is longer than the 72 hour completion time in required action B.4 of Technical Specification 3.8.1. Therefore, the Palo Verde Technical Specifications would require a plant shutdown prior to completing the repairs on EDG 2A. This condition could not be avoided since it is a result of an unrelated failure discovered during restoration from the initial declaration of inoperability.

3. **The safety basis for the request, including an evaluation of the safety significance and potential consequences of the proposed course of action. This evaluation should include at least a qualitative risk assessment derived from the licensee's PRA.**

The design basis of the onsite power systems, including the EDGs, is to provide redundant electric power to equipment required to safely shut down the plant assuming a single failure. Technical Specifications provide allowed outage times for required equipment to allow maintenance and testing. This proposed request would increase the time period that Unit 2 EDG 2A may be out of service from 72 hours to 108 hours (an additional 36 hours). During this time, the redundant EDG along with its associated safety equipment is required to be operable. Since only the out-of-service-time for the inoperable EDG is being extended, the redundant EDG will remain operable during that time, and compensatory measures will be taken to help ensure the stability of the electrical distribution system, this change is not safety significant and, in addition, the compensatory measures discussed in section 6 will reduce the potential need for Unit 2 EDG 2A. The electric power grid is stable. Load demand today is moderate due to cooler weather and is

expected to remain moderate due to entering a weekend, providing reasonable assurance that the electric power grid will remain stable during the extension period.

The allowed outage times for the Technical Specifications are based upon an acceptable probability that a single failure will not occur simultaneously with an accident while system redundancy is lost. Therefore, in order to demonstrate that the proposed increase in the allowed outage time is acceptable, a probabilistic risk assessment (PRA) was performed to determine the core damage probability (CDP) associated with the proposed one-time extension of the EDG LCO allowed outage time. The CDP was calculated by multiplying the increase in core damage frequency (CDF) by the duration of the configuration for the occurrence of a given configuration (Regulatory Guide 1.177, An Approach for Plant-Specific, Risk-Informed Decision Making: Technical Specifications, dated August 1, 1998). This analysis determined that the CDP for the extended allowed outage time (AOT + 4 days) for Unit 2 EDG 2A is 2.44E-06 (incremental risk). The PRA also evaluated the option of performing the proposed repair during plant shutdown (Mode 5). This analysis determined the incremental risk associated with a plant shutdown and the subsequent restart after repair. The CDP for the plant shutdown was determined to be 3.29E-06 (incremental risk). This result clearly indicates that the incremental risk associated with a plant shutdown is higher than the risk associated with repairing the EDG in Mode 1. Based on these CDPs, the risk associated with the proposed extended outage of an added 36 hours for Unit 2 EDG 2A on a one-time basis is acceptable.

This CDP for the proposed extended outage for Unit 2 EDG 2A can also be compared to the accepted risk associated with removing the Train A auxiliary feedwater pump from service for the Technical Specification allowed outage time of 72 hours. The increase in CDP for this case was determined to be 3.98E-6. Since the risk associated with removing the auxiliary feedwater pump from service for the approved completion time of 72 hours is acceptable and the risk associated with the proposed extended outage for Unit 2 EDG 2A is less than the technical specification auxiliary feedwater pump completion time, the risk associated with the proposed outage of the EDG on a one-time basis is acceptable.

Based on a risk review of this request, extending the out-of-service time for the Unit 2 EDG 2A on a one time basis from 72 hours to 108 hours is less of a risk than a plant shutdown to repair an inoperable EDG and is less than the risk associated with having one auxiliary feedwater pump out-of service for 72 hours as permitted by Technical Specifications. Therefore, the proposed one time AOT extension is not risk significant.

4. The basis for the licensee's conclusion that the noncompliance will not be of potential detriment to the public health and safety and that no significant hazard consideration is involved.

The Commission has provided standards for determining whether a significant hazards consideration exists as stated in 10 CFR 50.92. Enforcement Discretion for a facility involves a no significant hazards consideration if operation of the facility, in accordance with the proposed change, would not: (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) Involve a significant reduction in a margin of safety. A discussion of these standards as they relate to this enforcement discretion request follows:

Standard 1 – Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

No. The proposed request does not involve a significant increase in the probability or consequences of an accident previously evaluated.

During normal plant operation, the emergency diesel generators (EDGs) are not operating. The EDGs provide two trains of redundant onsite standby power if there is a loss of normal power. The redundancy of the EDGs allows testing of one EDG without a loss of the safety function of the system. When one EDG is taken out of service and the 72 hour action statement is entered, the engineered safety features powered by the EDG are still operable since normal power is still available.

The allowed outage times for the Technical Specifications are based upon an acceptable probability that a single failure will not occur simultaneously with an accident while system redundancy is lost. Therefore, in order to demonstrate that the proposed increase in the allowed outage time is acceptable, a probabilistic risk assessment (PRA) was performed to determine the core damage probability (CDP) associated with the proposed one-time extension of the EDG LCO allowed outage time. The CDP was calculated by multiplying the increase in core damage frequency (CDF) by the duration of the configuration for the occurrence of a given configuration (Regulatory Guide 1.177, An Approach for Plant-Specific, Risk-Informed Decision Making: Technical Specifications, dated August 1, 1998). This analysis determined that the CDP for the extended allowed outage time for Unit 2 EDG 2A is 2.44E-06 (incremental risk). The PRA also evaluated the option of performing the proposed repair during plant shutdown (Mode 5). This analysis determined the incremental risk associated with a plant shutdown and the subsequent restart after repair. The CDP for the plant shutdown was determined to be 3.29E-06 (incremental risk). This result clearly indicates that the incremental risk associated with a plant shutdown is higher than the risk associated with repairing the EDG in Mode 1. Based on these CDPs, the risk associated with the proposed extended outage for Unit 2EDG 2A on a one-time basis is acceptable.

This CDP for the proposed extended outage for Unit 2 EDG 2A can also be compared to the accepted increased risk associated with removing the Train A auxiliary feedwater pump from service for the Technical Specification allowed outage time of 72 hours. The increase in CDP for this case was determined to be 3.98E-6. Since the risk associated with removing the auxiliary feedwater pump from service for the approved completion time of 72 hours is acceptable and the risk associated with the proposed extended outage for Unit 2 EDG 2A is less than the technical specification auxiliary feedwater pump completion time, the risk associated with the proposed outage of the EDG on a one-time basis is acceptable.

The Technical Specification definition for operability of a system, subsystem, train, component, or device states that a "system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s)." Therefore, the equipment supplied by an inoperable EDG (emergency electrical power) is still operable as long as offsite (normal) power is operable. The Technical Specification requirement for offsite power to be operable is not changed by this request.

In addition, the requirement in Technical Specification 3.8.1 required action B.2 to verify that the redundant required features are operable would also apply. As described in the Bases for Technical Specification 3.8.1, required action B.2 is intended to provide assurance that a loss of offsite power, during a period that an EDG is inoperable, does not result in a complete loss of redundant required features. With an EDG out of service coincident with one or more inoperable required features that are associated with the operable EDG, required action B.2 must be entered. Therefore, even though the Unit 2 EDG 2A will be out of service, the Technical Specification requirements for the other power sources and redundant required features will remain in effect, ensuring that required power sources and safety related equipment are operable.

The proposed NOED only impacts the time allowed for the EDG to be inoperable and does not change the equipment that is allowed to be inoperable. With the same equipment required to be operable, the response to an accident would be as described in the UFSAR. Therefore, the proposed enforcement discretion does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Standard 2 --Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

No. Increasing the allowed out-of-service time for the Unit 2 EDG 2A from 72 hours to 108 hours on a one-time only basis for the purpose of completing the EDG repair does not create the possibility of a new or different kind of accident from any accident previously evaluated. Since the EDGs are a support system and not accident initiators, extending the allowed outage time of the Unit 2 EDG 2A creates no new accident scenarios. The Technical Specifications already allow the EDG to be out of service for 72 hours to complete maintenance and testing. The increase in the out-of service-time for the Unit 2 EDG 2A does not change the basis for allowing the EDG to be out of service. Therefore, extending the out-of-service time does not create the possibility of a new or different kind of accident from any accident previously evaluated.

Standard 3 -- Does the proposed change involve a significant reduction in a margin of safety.

No. Extension of the allowed outage time for the Unit 2 EDG 2A on a one time basis does not involve a significant reduction in a margin of safety because there are no new or common failure modes being created by the extension. The performance of the associated safety systems will not be degraded by the extended out-of-service time since normal power will be operable for the A train equipment and both normal and emergency power will be operable for the B train equipment. The request does not change the basis for out-of-service time for the EDG described in the Bases for Technical Specification 3.8.1 required action B.4.

5. The basis for the licensee's conclusion that the noncompliance will not involve adverse consequences to the environment.

The proposed enforcement discretion extends the out-of-service time for the Unit 2 EDG 2A on a one time basis. APS has determined that the proposed enforcement discretion involves no changes in the amount or type of effluent that may be released offsite, and results in no increase in individual or cumulative occupational radiation exposure. As such, operation of PVNGS Units 1, 2, and 3, in accordance with the proposed NOED, does not involve an unreviewed environmental safety question.

6. Any proposed compensatory measure(s).

The following measures will be taken to further reduce the risk associated with extending the completion time for required action B.4 of Technical Specification 3.8.1 from 72 hours to 108 hours (AOT + 36 hours) to repair the EDG.

1. No planned switchyard work that could potentially result in a loss of power to any unit,
2. No planned maintenance on either gas turbine generator, and
3. No additional planned EDG work in any unit.

The requirements of Technical Specification 3.8.1 required action B.2 will also be met. Required action B.2 is intended to provide assurance that a loss of offsite power, during the period that an EDG is inoperable, does not result in a complete loss of safety function of redundant required features.

Switchyard activities are normally performed under the cognizance and direction of the Unit 1 Shift Manager. Directions will be provided to the Unit 1 control room to direct that offsite power supplies to the units should not be interrupted while the EDG repair is being performed. APS and Salt River Project responsible control centers will be notified of the work being performed in Unit 2 in order that appropriate precautions may be taken for the outside distribution system. Maintenance activities in the switchyard and in the vicinity of the incoming lines and associated 13.8 kV buses (NAN-SO3/5, NAN-SO4/6) will be suspended. No emergent work will be performed or vehicular access allowed in the switchyard without specific review and approval by the Unit 1 Shift Manager and the Site Manager. Any emergent work in the switchyard will be evaluated for potential affect on the supply of offsite power to the units and will only be conducted if authorized by the Site Manager.

7. **The justification for the duration of the noncompliance.**

The 36 hour extension of the AOT is sufficient to effect repairs to the Unit 2 EDG 2A, conduct post maintenance testing, and restoration of the EDG to operable status. The 36 hours includes additional contingency time to correct the jacket water leak.

8. **A statement that the request has been approved by the facility organization that normally reviews safety issues (Plant On-site Review Committee, or its equivalent).**

The Plant Review Board has reviewed and concurred with this proposed AOT extension.

9. **The request must specifically address which of the NOED criteria for appropriate plant conditions specified in Section B is satisfied and how it is satisfied.**

For an operating plant, the NOED is intended to (a) avoid undesirable transients as a result of forcing compliance with the license condition and, thus, minimize potential safety consequences and operational risks or (b) eliminate testing, inspection, or system realignment that is inappropriate for the particular plant conditions.

Specifically, this increase in the EDG AOT is necessary to avoid an undesirable shutdown to Mode 3 in 6 hours and to Mode 5 in 36 hours per LCO 3.8.1 actions H.1 and H.2.

10. **If a follow-up license amendment is required, the NOED request must include marked-up TS pages showing the proposed TS changes and a commitment to submit the actual license amendment request within 48 hours.**

No license amendment is anticipated at this time.

11. No NOED involving severe weather or other natural events is being requested.